bullmer

G7 model
Automatic Spreading Machine
Operation Manual

Please read this manual carefully before operating the machine

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1. Note before operation

Before operation, please note that if the machine moves when it is powered off, it needs to be reset to zero after it is powered on; otherwise, it does not need to be reset;

When the proximity switch passes the sensing point backward , the current position is reset to 0.00 ; this is the reference point for the machine to calculate the position. Each time the proximity switch passes the sensing point backward , the current position is reset to 0.00 .

When a machine uses more than two cutting beds, the first necessary action

after moving from bed A to bed B is to connect the power supply (power on) and gently push the machine from front to back so that the proximity switch passes the sensing point. This allows the machine to determine its own reference position.

the power is suddenly cut off while the machine is in motion, it will brake immediately. However , the reference position will be different from the original position . In this case, after power is restored, the machine must be manually returned to the zero position and the operation must be repeated . The proximity switch should be used to pass the zero point from the front to the back to allow the machine to re-establish its reference position.

Note: If the switch is faulty , the machine will fail to reset to zero;

2. Panel Introduction

button	Function Introduction
	Four-way joystick, inch forward, inch backward, up, down;
	Spreading wheel rotates forward and reverse;
	pause
	Emergency stop: disconnect the power supply of the motor without disconnecting the power supply of the PLC and the screen; this button can stop the high-speed running machine immediately;
	Reset, rotate the emergency stop button out, confirm that the machine has returned to normal, press the reset button, and the motor will be powered on; in addition, after starting the machine, you also need to press the reset button to power on the motor;

	**Power switch**
	**USB port**

3. Software Introduction

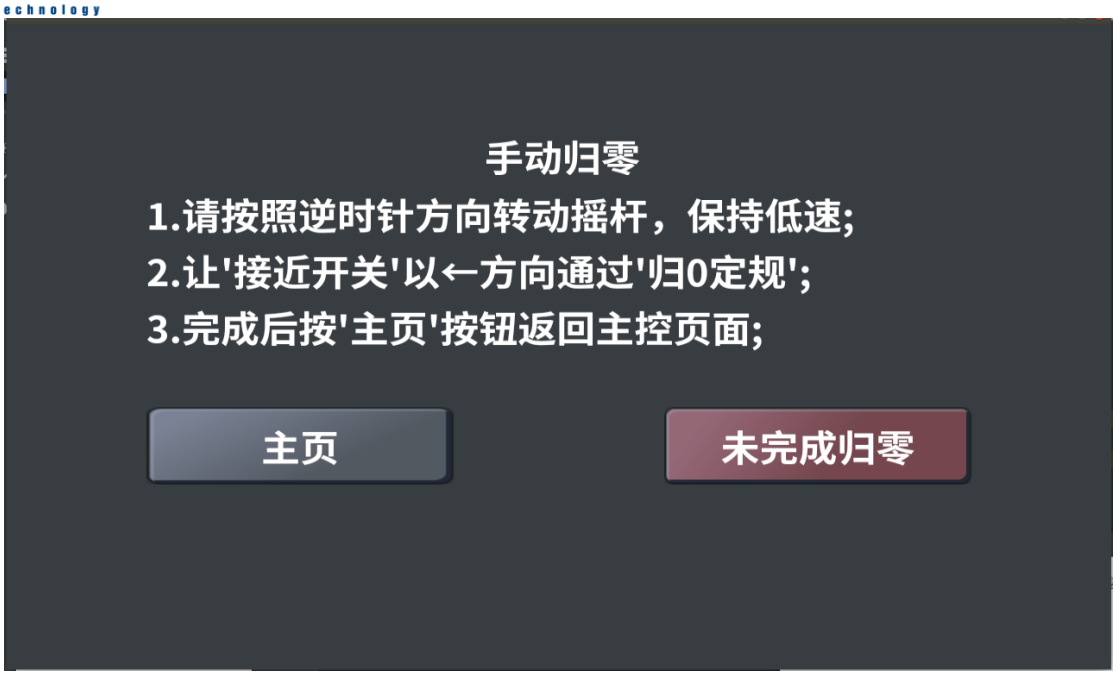
3.1 Starting Screen

button	Function Introduction
	Switch language
	Enter the system
L /R	Indicates left operation/right operation

3.2 Position Judgment

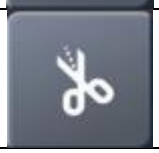
If the machine is not moving while the power is off, click Yes to enter the main screen;

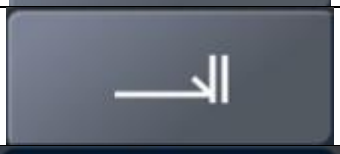
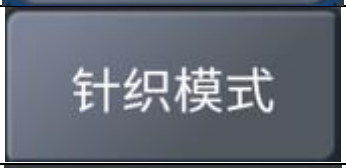
Otherwise, click No to enter the manual zeroing screen;

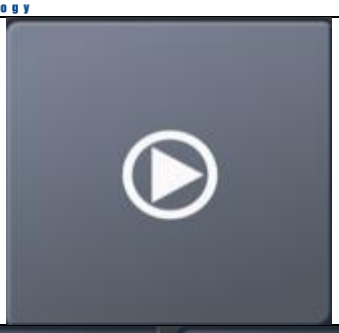
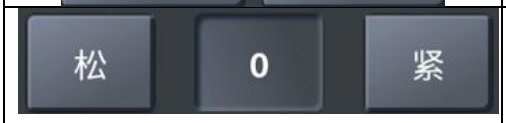


Manually operate the joystick and move it backward. The machine will sense the zero point and automatically enter the main screen, indicating that the zero return is successful.

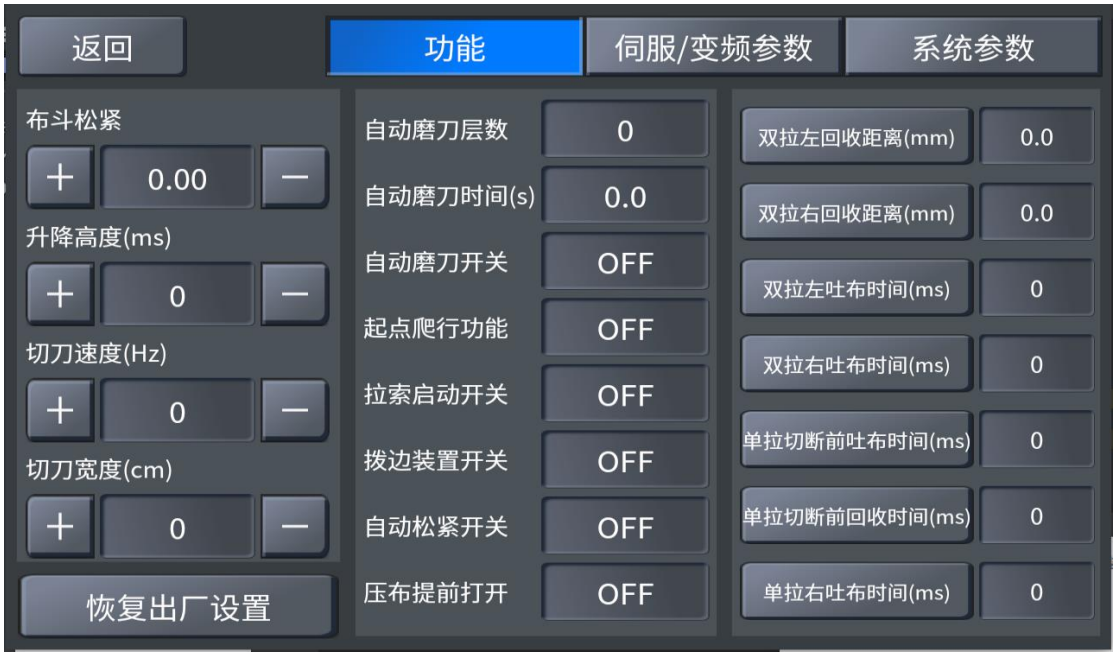
3.3 Main Screen

button	Functional Description
	The cloth bucket roller rotates counterclockwise and the cloth is discharged clockwise;
	The cloth bucket roller rotates clockwise and the cloth is discharged counterclockwise;
	Laying down the cloth
	Collecting cloth
	Double pull/single pull
	Piece of cloth/roll of cloth
	cut off

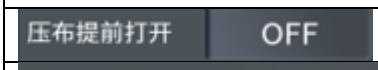
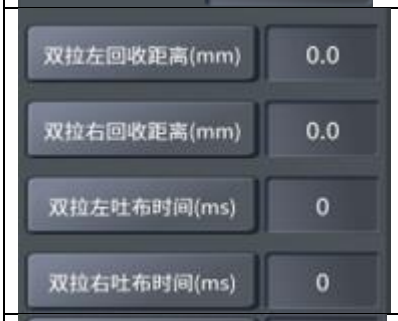
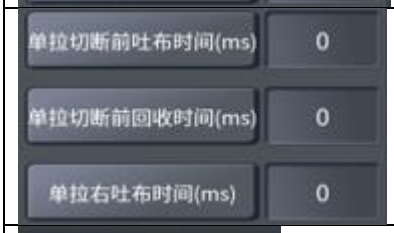
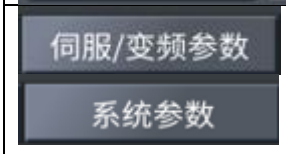
	**sharpening the knife**
	**Stop left**
	**Right stop**
	**Length input, the unit can be mm, yard, inch; long press the current speed display to switch;**
	**The machine's real-time speed is displayed, with positive and negative values indicating direction. Press and hold the display box to switch between units of mm, yard , and inch.**
	**The current position of the machine is displayed, and long pressing can write the value into the length;**
	**The number of layers already laid can be added or subtracted, and long press the display box to clear it;**
	**The number of layers required;**
	**Knitted/woven spreading mode, distinguishing between elastic and non-elastic fabrics, and differentiating acceleration and deceleration procedures;**
	**The cloth releasing switch of the cloth unwinding slot is also the switch for the edge and the cloth spreading wheel;**

	**The machine automatically starts/stops;**
	**Move left/right, the input boxes above correspond to the speed sections respectively;**
	**The tightness of the fabric can be increased or decreased according to the actual situation;**
	**Return to the previous page, generally used to switch languages, eliminate origin errors, and return to the origin;**
	**Status bar, showing error information; Click to enter the error reporting interface and view the error situation;**
	**Count the number of layers of each roll of fabric separately, dispatch orders through the Internet of Things, and set parameters**
	**The number of layers is recorded separately, and each box represents a roll. You can manually select the box to add or subtract the number of layers. If there is no cloth, it will automatically jump to the next box. Total represents the total number of layers.**

3.4 Common Parameters



parameter	illustrate
布斗松紧 0.00	Adjust the amount of fabric at the unwinding slot; Factory value: 1.00
升降高度(ms) 0	Each time a layer is laid, the height will automatically rise; Factory value: 80
切刀速度(Hz) 0	Cutting speed Factory value: 20
切刀宽度(cm) 0	Cutting width Factory value: 190
恢复出厂设置	So the parameters are restored to factory default
自动磨刀层数 0 自动磨刀时间(s) 0.0 自动磨刀开关 OFF	Automatic sharpening layer factory value 60 Automatic sharpening time factory value 1.5
起点爬行功能 OFF	Starting point crawling function Slow start, suitable for smooth fabrics
拉索启动开关 OFF	External pull-cord control, open, with

	start-stop function; closed, only with pause function;
	Belt edge shifting function at the cloth groove
	Before cutting the cloth, adjust the tightness to improve the accuracy;
	Adapter for use with folding device
	Use double pull to adjust the tightness of the fabric at both ends;
	Use it by pulling it alone to adjust the tightness at both ends;
	The data here has been debugged by the manufacturer's engineers and does not need to be changed later; it is also password protected;

3.5 Alarm Information

Alarm information	illustrate
Number of layers/length not set	The default number of layers and length is zero
Number of layers to	The preset number of layers is equal to the current layer
The input length exceeds the limit	The input length exceeds the table length
The opposite side reaches the limit	When the opposite side reaches the far left or right side, the machine will stop, and the yellow light will flash and the buzzer will sound;
Travel overrun	During automatic operation, if the machine runs out of the set length range, this alarm will be accompanied by an origin position alarm. In this case, check whether the external encoder is close to the edge of the table; check whether the side guide wheel is loose; check whether there is any foreign matter on the travel wheel, and reset the travel wheel. If the travel motor is normal and the current position changes normally, click R ST or reset the fault. The origin position alarm cannot be reset manually and needs to be reset to zero.
Position deviation is too large	During the operation of the machine, the external encoder and the travel wheel deviate. In this case, you

	need to check whether the external encoder is normal or the travel motor is normal; clean the desktop edge, travel wheel, and encoder wheel; At high speed, an emergency stop is triggered. It is normal to have this error message. You can just reset it. The origin position alarm cannot be reset manually and requires a zero reset operation;
Origin position not confirmed	1. Manual zeroing operation 2. Return to the previous page and click "Yes" on the "Confirm whether you are on the current location page";
Encoder wire break	External encoder failure
Encoder reverse	External encoder failure
Reverse direction without touching the origin	The distance between the zero point sensor block and the sensor is too far Zero point sensor damaged
Anti-collision trigger	During the machine operation, photoelectric anti-collision is triggered
The cutter seat is not at the fixed point	The cutter is not at the origin
Drive alarm	Walking/cloth spewing/frequency conversion alarm, click R ST /alarm reset/restart to recover
Emergency stop triggered/power on without reset	You need to press the blue reset button
Servo initialization, please wait	Servo power-on time, need to wait 5 seconds
Travel servo alarm code Fabric dispensing servo alarm code Bucket frequency conversion alarm code	See Inovance Servo Manual for details.

3.6 PLC port information monitoring

PLC input and output monitoring to check whether the equipment sensors are normal ;

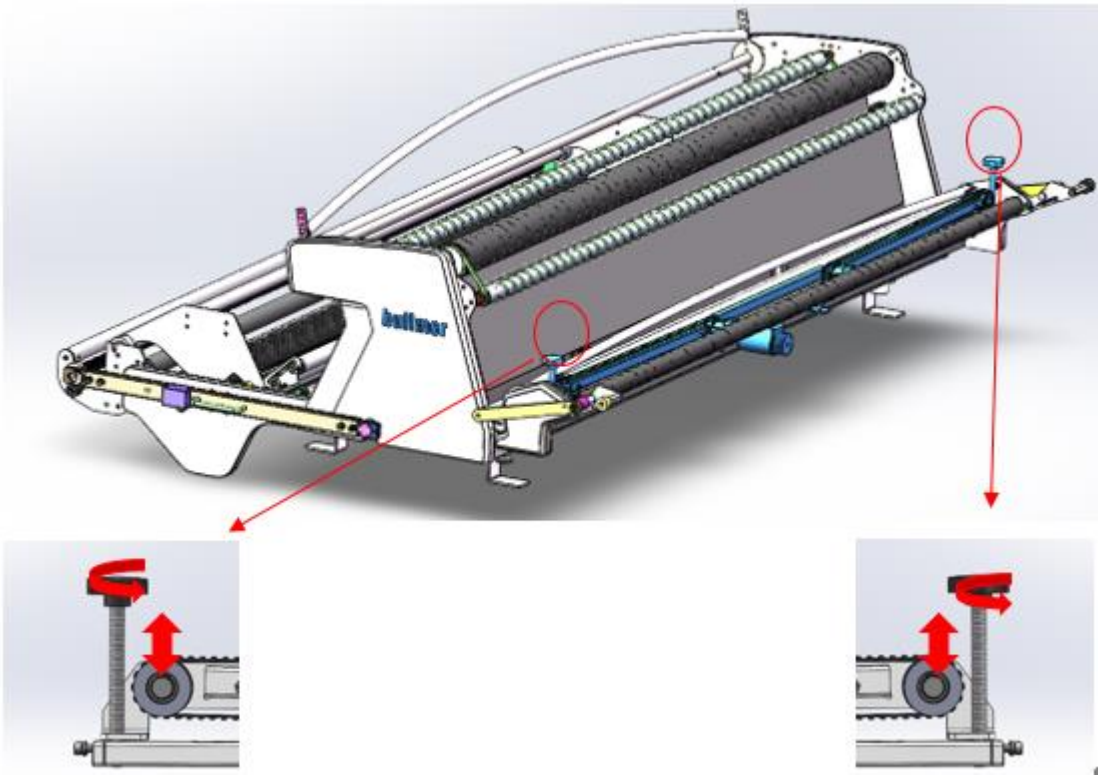
4. Hardware Introduction

element	introduce
Q 1	Cam switch
Q 2	breaker
K1	contactor
T 1	24 V power supply
A 1	Travel servo drive
M 1	Travel servo motor
R 1	Travel brake resistor
A 2	Fabric dispensing servo drive

M 2	Cloth dispensing servo motor
R 2	Tubu brake resistor
A 3	Falling/cutting aid inverter
A 4	Bucket inverter
M 3	Falling motor
M 4	Knife motor
M 5	Bucket motor
A 5	Safety relays
A 6	PLC
T 2	transformer
F 1	Opposite side fuse
M 6	Edge motor
R 5	Braking resistor
M 8	Circular knife motor
U 1	Knife sharpening electromagnet
M 7	Lifting motor
F 3	Lifting fuse
M 9	Cloth pressing motor
A 7	Cloth pressing controller
A 8	Dial controller
A 9	touchscreen

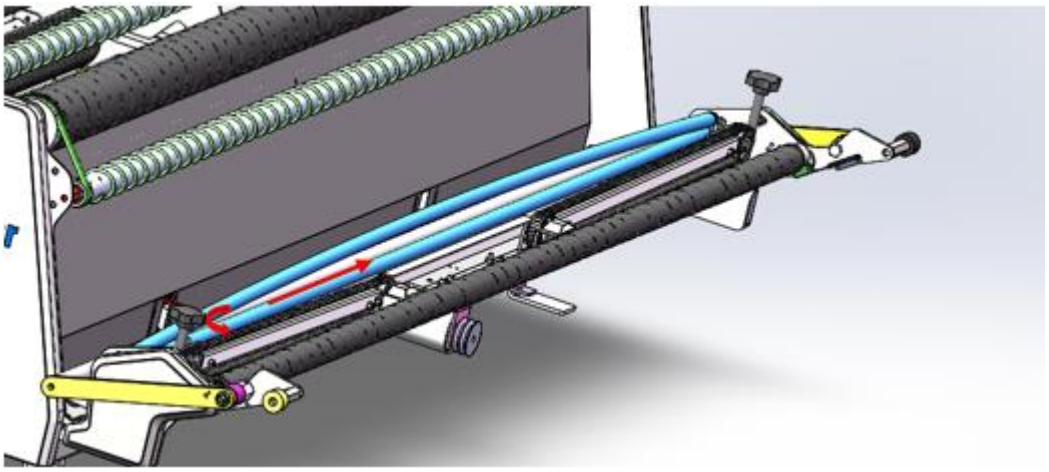
5. Mechanical Introduction

5.1 Host

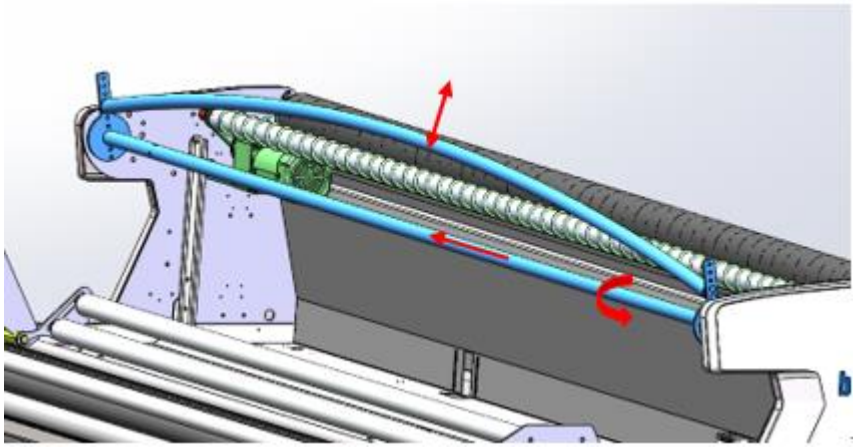


First-level edge shifting pulley adjustment: by rotating the nuts on both sides, the upper and lower heights of the pulleys can be changed to adjust the edge shifting

effect;



Adjustment of the arc rod: Push the arc rod in the direction of the arrow, and then rotate it to the required angle as needed;

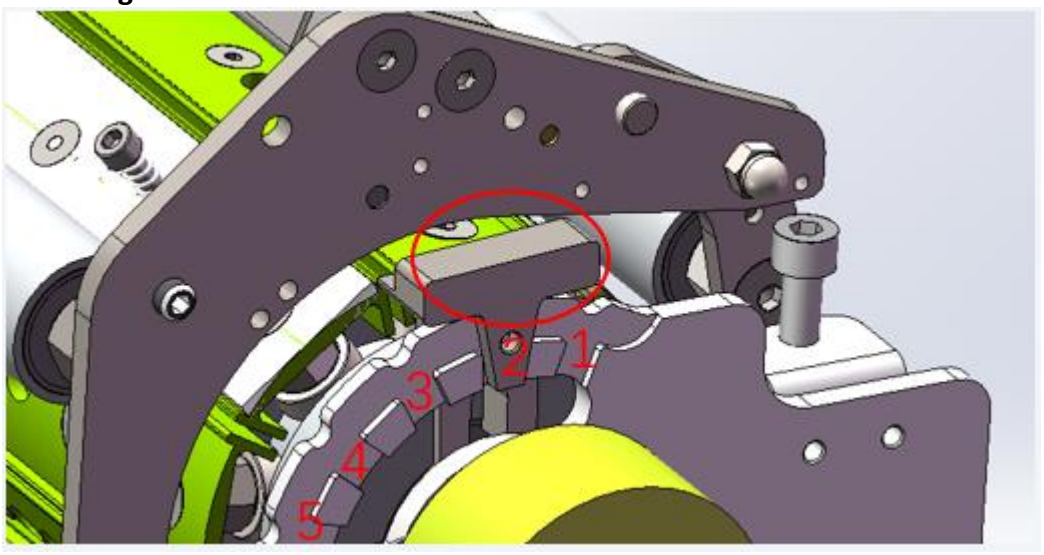


Spreading rod adjustment:
Method 1: Push the spreading rod assembly a short distance in the direction of the arrow, and then rotate it to the corresponding angle according to actual needs;
Method 2: Unscrew the screws at both ends of the spread elbow, adjust the fixed height of the spread elbow, and then screw the screws back in;

Front drop roller

Braking adjustment: By changing the tightening length of this screw, the braking force of the buffer pad on the front column roller can be adjusted;

5.2 Lifting mechanism



Tension adjustment usage scenarios:

1. Fabrics that are easy to shrink and elastic fabrics;

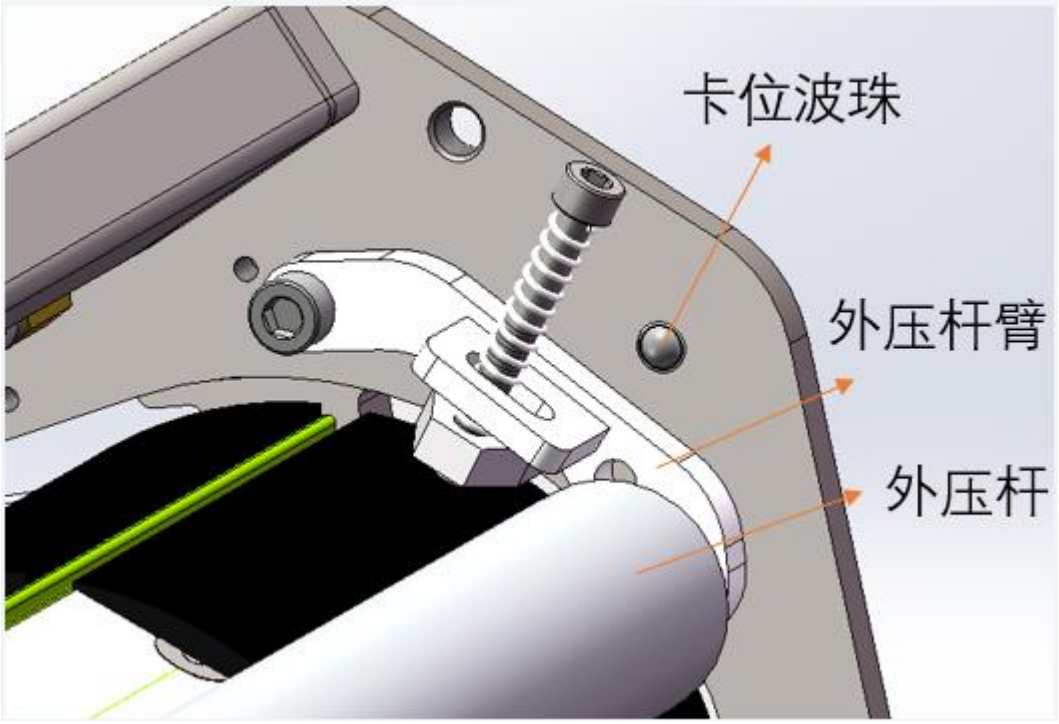
How to use:

1. As shown in the figure, the function of the tensioning adjustment block is to control the opening and closing size of the blades in the action area of the spreading wheel, thereby pulling the wrinkled fabric;

In gear 1, within the spreading wheel area, the blades open and close in the same size, so the fabric is in a straight-in and straight-out state without any pulling effect.

At gear 2, the blade opening and closing distance difference gradually appears within the spreading wheel's action area, and the pulling effect begins to appear.

At gear 5, the blade opening and closing distance difference is the largest, and the pulling effect becomes more obvious from gear 2 to gear 5.



External pressure rod adjustment usage scenarios:

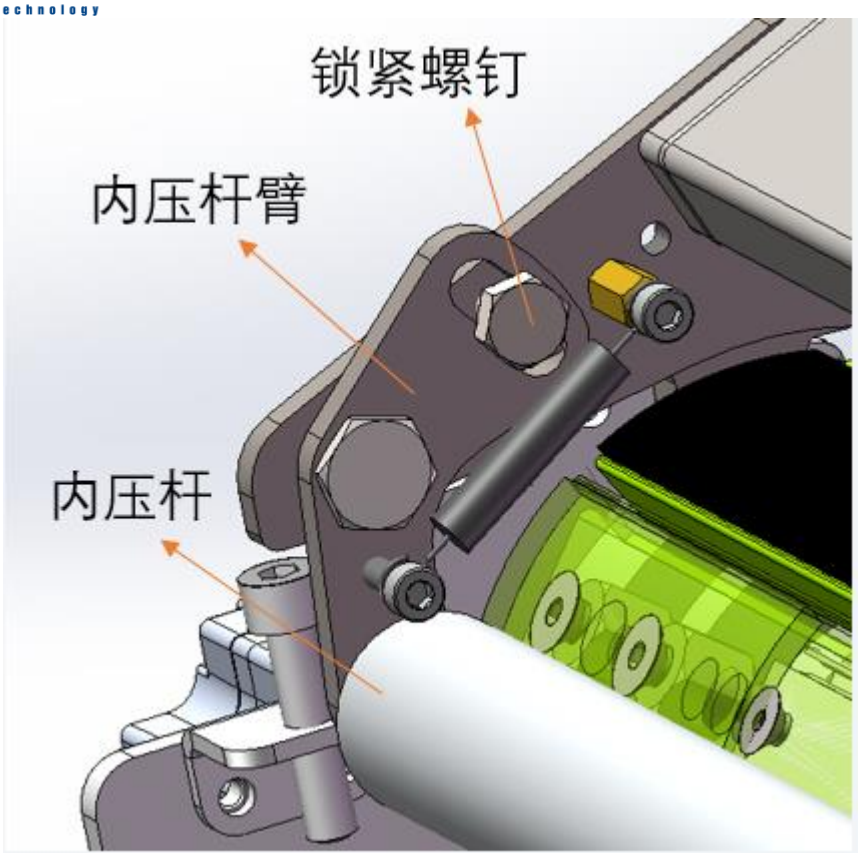
1. Use thin and smooth fabrics, such as down fabrics;

2. The spreading wheel slips, causing cloth to drag and accumulate;

How to use:

1. When laying conventional fabrics, lift the external pressure rod, and the holes on the external pressure rod arms on both sides will engage with the positioning beads, and the external pressure rod will not work;

2. When laying special fabrics (thin and slippery fabrics), press the external pressure rod down. At this time, the external pressure rod applies pressure to the fabric through the compression spring and its own gravity to prevent the fabric from slipping.



Internal pressure rod adjustment usage scenarios:

1. Lay new fabrics of different thicknesses;

2. When laying thin and slippery fabrics, the outer pressure rod has been lowered, but there is still slippage;

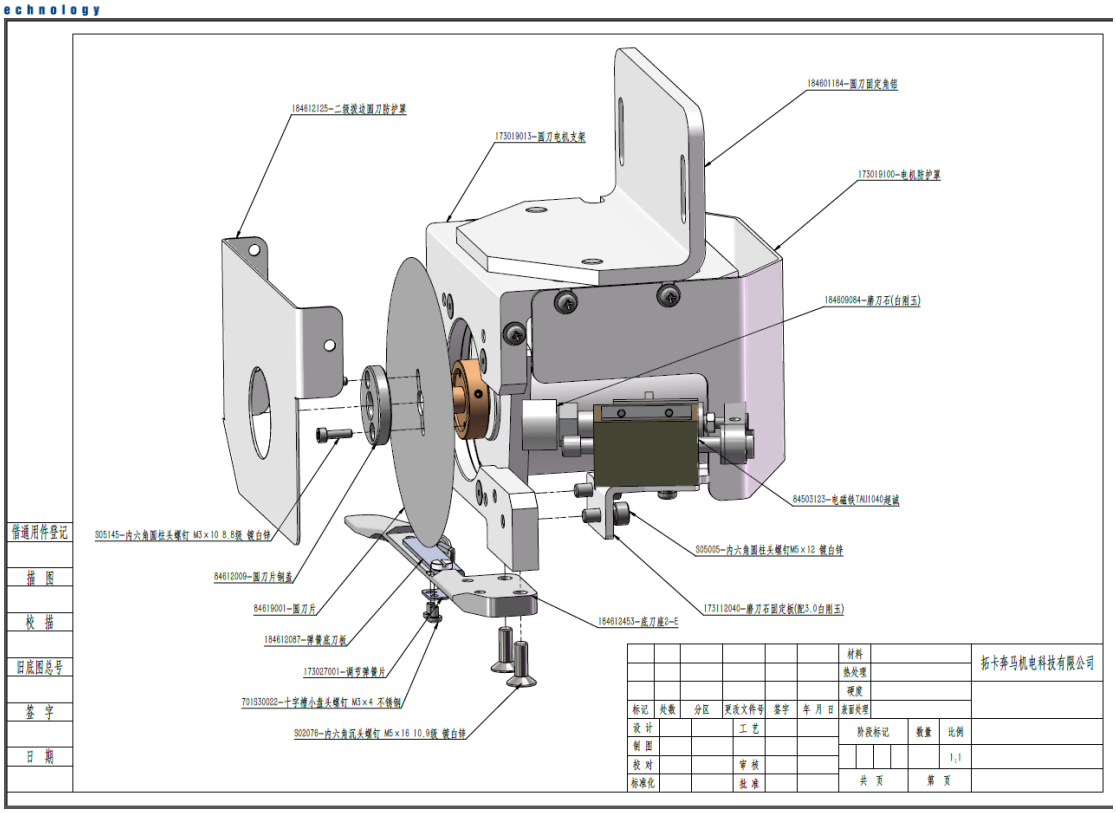
How to use:

1. The function of the inner pressure rod is similar to that of the outer pressure rod, which makes the fabric close to the outline of the spreading wheel to prevent the fabric from slipping;

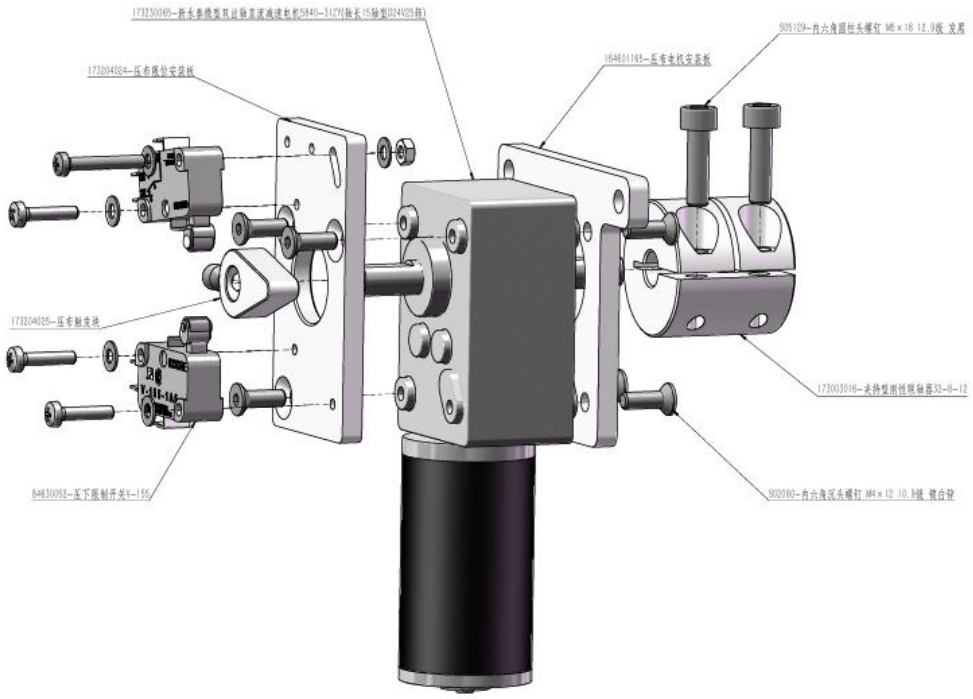
After debugging by the manufacturer, the locking screw is in the locked state. At this time, there is a gap of about 5mm between the inner pressure rod and the surface of the spreading wheel. During normal spreading, no adjustment is made. Only when the adjustment capacity of the outer pressure rod is insufficient, the locking screw is loosened to press the inner pressure rod against the surface of the spreading wheel to obtain higher friction.

6. Spare parts replacement

6.1 Circular Blade and Whetstone



6.2 Cloth pressing motor and cloth pressing limit



7. Fault

situation	reason	Countermeasures
cloth cutting blade does not rotate	1. Fuse F2 burn 2. Relay failure 3. The circular knife	1. Check the fuse . 2. Turn on the cutter and measure whether there is a DC voltage of

	motor is damaged	about 24V at the cutter output plug. If not, replace the circuit board. 3. The motor life is about 1.5-3 years. It is recommended to replace the entire motor. 4. Use a multimeter to measure whether the transformer input power is AC 20V.
The opposite side fabric table does not move	1. Fuse F1 burn 2. Thyristor damage 3. Side motor failure	1. Check the fuse 2. Cover the sensor and measure whether there is a DC voltage of about 24V at the output plug on the opposite side. If not, replace the circuit board. 3. This motor is not prone to failure unless it is hit. 4. Use a multimeter to measure whether the transformer input power is AC 24V.
Unable to walk automatically	1. Is the cutter at the origin? 2. Is the drive reporting an error?	1. Return the cutter to its origin 2. Restart
Can't sharpen the knife	1. Fuse F2 burn 2. Coil damage 3. Sharpening electromagnet failure	1. Check the fuse 2. After sharpening, measure whether there is a DC voltage of about 24V at the sharpening output plug. If not, replace the circuit board. 3. The electromagnet is not prone to failure. 4. Use a multimeter to measure whether the transformer input power is AC 24V.
Edge not working	1. Drive overload protection 2. Edge shifting motor failure	1. Check if the drive light is flashing red and the power is off Restart the drive, or restart the machine 2. Replace the edge shifting motor.
The lifting mechanism does not work	1. Fuse F3 burned out 2. Circuit board damage 3. Lifting motor failure	1. Check the fuse 2. Press the up key to measure whether the voltage between circuit boards 43 and 40 is 220V AC. Press the down key to

		measure whether the voltage between circuit boards 43 and 41 is 220V AC. If not, replace the circuit board. 3. Check whether the circuit and motor are normal. 4. Use a multimeter to measure whether the 220V input power is AC 220V.
The cloth pressing mechanism does not work/works abnormally	1. Limit switch failure 2. Relay is damaged 3. Cloth pressing motor failure	1. Adjust the limit switch position and ensure that one of the limit switches is triggered when the pressure bar is open or pressed down. 2. Replace the cloth pressing relay. 3. Check whether the circuit and motor are normal. 4. Use a multimeter to measure whether the input power is DC 24V.

8. Maintenance

8.1-day maintenance

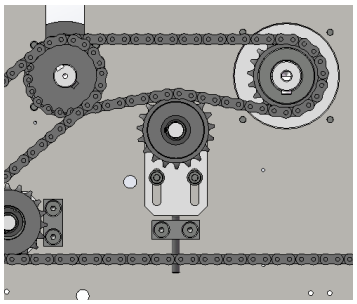
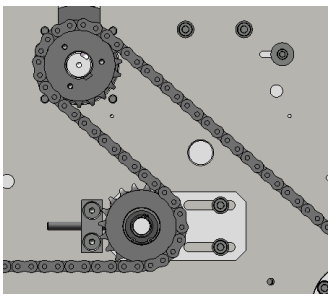
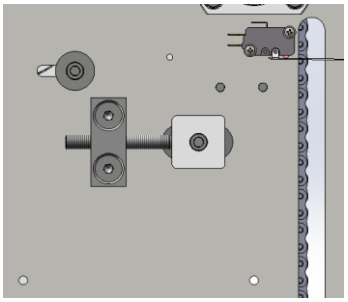
1. Use an air gun to clean the dust on the machine surface and the tangled wires on all rollers every day.
2. Use an air gun to clean the dust inside the electrical parts every day. There is no need to open the shell. Just clean inwards between the gaps in the shell.
3. Clean the tangled wires and debris on the running wheels every day
4. Clean the machine track on the cutting board every day to avoid any adhesive, water, oil or other substances on it.
5. Clean all electronic sensors every day to ensure the surface is clean
6. Check the condition of the blade every day and clean the glue and other

8.2 Months Maintenance

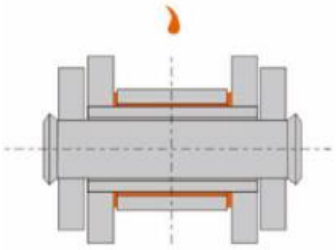
1. The chain should be appropriately tight, neither too loose nor too tight. It is best if the loose side of the chain can be slightly pushed by hand . During maintenance, check the tightness of the chain. If the loose side sags significantly, adjust the tensioning structure and re-tighten it .

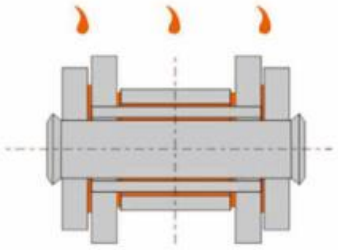
Also, clean the fabric debris.

2. It is recommended to re-lubricate the chain once a month . It is recommended to use a lubricant with a viscosity of N150 (ISO VG 150). Use a brush to brush the gaps between the hinges of the loose links of the chain (between the pin and the sleeve, and between the sleeve

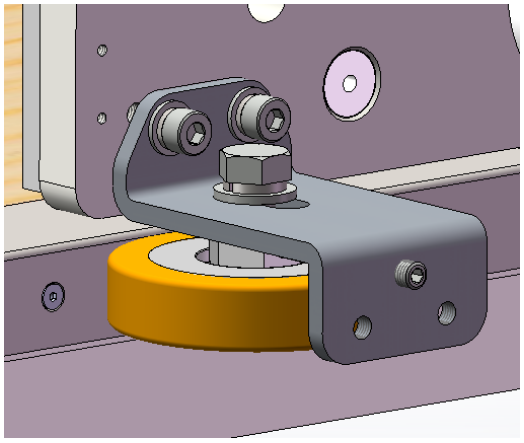




and the roller).





3 . Check the tightness of the lower wheel every month and adjust it in



time

4 . Before turning on the device, check the wires and plugs for cracks or exposed wires. If any problems are found, stop using the device and repair it promptly.

8.3 years of maintenance

1. Check the foam on the roller and replace it regularly

2. Check the blade and whetstone and replace them in time

3. Check the use of the conveyor belts of each part and replace them in time according to the situation

4. Check the relay usage and whether the contacts are blackened, and replace them immediately.